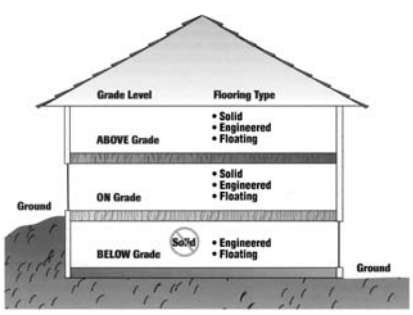
Installation Guide

¾” Prefinished solid hardwood

PRIOR TO INSTALLATION

Contactor/ Installer Open one box or two to verify that **customer accepts the color and grade. An installed Floor is an accepted floor**. It is important to call your dealer and ask questions if you think there are installation issues.

Homeowner If you decide to contract out the installation be sure to approve the product prior to installation and review expectations and layout with the contactor. In addition, be clear on the care and maintenance expected during and after the installation. In addition,it is important to understand where solid wood flooring can be installed improper use of solid wood flooring will void the warranty.



Installation procedures not recommended i.e. solids over radiant heat and in basements will not be covered under the warranty

	Solid	Engineered
Below Grade	NO	YES
Glue down install	NO	YES
Over Radiant Heat	NO	YES

LIMITED WARRANTY

The Kingsmill hardwood flooring products are covered by a limited warranty.

PREPARATIONS

Always make sure that the plastering, cement work and painting are completed and well dried. Unload in Dry Weather never unload in rain, sleet or snow. The flooring should be stored in a Climate-controlled well ventilated building. **Ensure that the heating system or air conditioning system has been installed and that it is operational running at 68F**. It is essential to acclimatize the wood for a minimum of 48 hours at a normal **relative humidity (40% - 50%).** The relative humidity can be verified by a **Thermo-Hygrometer.** Please be aware some Humidity readings on central air systems are not accurate so please be cautious. **Shrinkage and expansion is normal and will not harm your floor as long as the humidity level is kept at a normalized level (between 40% and 60%).** Cracks and width variation caused by low relative humidity (less than 40%) are not covered under the warranty. In addition, if the relative humidity is out of the 40-60% you run the risk of cupping which is not a manufacturing defect. **If necessary use a humidification or dehumidification system to obtain the correct relative humidity. Most regions in Canada and North east US will require humidification systems in the winter.**

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MAINTENANCE

Please read the care and maintenance guide for more detail.
Never use a damp mop or wet cloth to clean your hardwood flooring. Water can seriously damage any kind of wood. Never use wax on your prefinished hardwood flooring. Never allow direct contact between the legs of pieces of furniture and the flooring. Use felt protectors under the legs in order to prevent scratches. Use a dry mop or vacuum cleaner frequently to eliminate solid particles which might scratch your hardwood flooring.
Please remember that water, sand, salt and dust are not compatible with hardwood flooring. Without losing time, absorb water or liquid spills with a dry cloth. If there is a door leading outside from the room where you have installed your hardwood flooring, use a door mat to catch the dirt and absorb the moisture. Never use a rubber mat, with a foam or plastic backing. Some foam may damage your floor, therefore they are not recommended on hardwood flooring.

BASEMENTS AND CRAWL SPACES

Basements and crawl spaces must be dry. Crawl space should be a minimum of 18" (457mm) from ground to underside of joists.
Crawl space earth (or thin concrete slab) should be covered 100 percent by a vapour retarder of black polyethylene (minimum 6 mil) or any recommended puncture-resistant membrane, such as Class C, meeting ASTM D-1745.
If it is new construction ensure that the basement has cured and is not emitting high levels of moisture this can be checked with a hydrometer to see the relative humidity in the air.

ACCEPTABLE MOISTURE BARRIERS

Installation of a vapour retarder reduces the potential for moisture or vapour related problems, but does not guarantee elimination of moisture or vapour related problems. Installation of a vapour barrier is recommended for Kingsmill flooring.

- An acceptable vapour retarder For wood subfloors is a vapour resistant material, membrane or covering with a vapour perm rating of greater than or equal to .7 and less than or equal to 50 when tested in accordance with ASTM E-96 Method A.
- Overlap seams a mi nimum of 4 inches.
- Over a wood subfloor, do not use an impermeable vapour retarder material with a perm rating of .7 or less, such as some 6 mil polyethylene film or other polymer materials, as it may trap moisture on or in the wood subfloor.

INSTALLING OVER EXISTING FLOORS

VINYL -Nail-down applications may be successful over existing sheet vinyl or vinyl tile if fastener penetration is not significantly diminished and the subfloor meets minimum requirements. **Fasteners must penetrate a proper subfloor by at least 5/8".** Caution with Vinyl flooring as some flooring previously (approximately prior to 1972) contained Asbestos must be removed by a professional who understands the risk involved. Contact you state or province Department of Health

EXISTING WOOD FLOOR-

Sand off old finish and high spots on existing wood floor and prep to clean, dry, sound, flat subfloor. Repair, re-nail or replace loose flooring products.
When installing new wood flooring parallel to an existing solid nail-down floor, add a minimum of 3/8" underlayment over the existing floor to increase stability.
When installing new wood flooring at a 45- to 90-degree angle to an existing solid nail-down floor, additional underlayment is not required.
The flooring must not show signs of cupping or it may transfer to the new flooring.

PARTICLE BOARD Particle board is not an acceptable underlayment due to lack of stability.

ACOUSTIC PERFORMANCE

There are several sound dampening products on the market and product choice heavily depends on the required building code by region and given application. Most applications require a minimum of 50 IIC and 50 STC value. The Higher the STC or the IIC number the better the sound attenuation performance The STC refers to the evaluation method used to quantify the transmission of airborne sound (voices, music etc) through building elements (walls, windows doors, floors etc). The IIC refers to the evaluation method used to quantify the transmission of impact noise (footsteps, dropped articles etc) through a floor/ceiling system.
Kingsmill flooring does not recommend a specific sound barrier but recommends that all technical specifications from the sound barrier are reviewed and are approved by the required building/condo code.
One basic key to peak performance is to avoid hard surface transference points. This would mean that the floor should not come in direct contact with the wall or the moulding. A small gap should be left between the moulding and the floor as well as the floor and the wall. Leaving a gap would prevent sound from traveling across the floor to the wall or moulding and down behind the wall where there is no sound control.
Nails are also considered a hard surface transference point. When installing a nail down wood floor nails should not penetrate through the floor and into the sound control material and subfloor below. Doing so would greatly diminish the performance of the sound control material.

SUBFLOOR PREPARATION

1. Ensure that all heating ducts and ventilation is insulated properly
2. It is the builder's or general contractor's responsibility to provide the wood-flooring contractor with a subfloor that is within the tolerances. Inspect the subfloor carefully. If there is movement or squeaks in the subfloor, refasten the subfloor to the joists in problem areas.
3. The floor must be level. Level is within 3/16" in 10` (5mm in 3m) and/or 1/8" in 6" (3mm in 2m)
4. Ensure that no creaking, loose edges, sags etc exist. Repair them as Necessary before starting installation. Sand joints to ensure flooring is level
5. The panels can be laid on the diagonal or perpendicular with the joists, with expansion space 1/8" spacing between panels If the subfloor panels are not tongue-and-grooved and if there is not sufficient expansion space, use a circular saw to create the specified space. Do not saw through joints on T&G subfloors
6. Fasten panels down at least every 6" to form a minimum grid pattern. Walk across the floor to check for squeaks add additional screw if necessary.
7. Ensure that there is no protruding fasteners
8. OSB must be APA rated and maintained in a controlled environment However OSB is not warranted for squeaky floors.
9. Wood subfloors should not exceed 12% and there should result in less than a 4% humidity difference between the flooring and the wood sub flooring material. If the subfloor has excessive moisture postpone installation find the moisture source and correct by raising the heat and increasing ventilation until proper conditions are met or apply suitable moisture retardant or use an underlayment that also acts as a vapour retardant. It important that the subfloor moisture is correct or the flooring is at risk for cupping which is not a manufacturing defect.
10. Make sure the subfloor is free of debris before beginning installation.

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On truss/joist spacing of		MINIMUM REQUIREMENT
16” (406mm) o/c or less	4’ X 8’ sheets.	1. nominal 5/8” (19/32”, 15.1mm) CD Exposure 1 Plywood subfloor panels 2. 23/32 OSB Exposure 1 subfloor panels
more than 16”, up to 19.2” (488mm) o/c	4’ x 8’ sheets glued and mechanically fastened.	1. nominal ¾” (23/32”, 18.3mm) T&G CD EXPOSURE 1 Plywood subfloor panels 2. nominal ¾” (23/32”, 18.3mm) OSB Exposure 1 subfloor panels,
over more than 19.2” (488mm) o/c up to a maximum of 24” (610mm).	4’ X 8’ sheets, glued and mechanically fastened	1. nominal 7/8” T&G CD EXPOSURE 1 Plywood subfloor panels, (Exposure 1), , 2. nominal 1” OSB Exposure 1 subfloor panels, 3. For double-layer subfloors,— or two layers of subflooring. Or brace between truss/joists in accordance with the truss/joist a the first layer should consist of nominal ¾” (23/32”, 18.3mm) CD Exposure 1 Plywood subfloor panels (CDX), 4. nominal ¾” (23/32”, 18.3mm) OSB Exposure 1 subfloor panels, The second layer should consist of nominal ½” (15/32”, 11.9mm) CD EXPOSURE 1 plywood subfloor panels, (Exposure 1) The ½” plywood should be offset by ½ panel in each direction to the existing subflooring. The panels may also be laid on a diagonal or perpendicular, with 1/8” spacing between sheets.

SOLID INSTALL ON SLEEPERS/SCREED

1. Check slab for flatness-fill low areas and grind down high areas
2. Use flat dry pressure treated screeds 2” x 4” (5cm x 10cm). Leave ¾” inch space
between walls and screeds
4. With treated screeds stainless steel fasteners are required
5. Use nominal ¾” (23/32 18.3mm) exposure 1, or 5/8” (19/32” 15.1mm) exposure 1 CDZ plywood or nominal ¾” (23/32 18.3mm) OSB underlayment spaced and oriented perpendicular to screed direction.
6. Lay plywood on top of the screeds and place vapour barrier on top of plywood.

TOOLS AND ACCESSORIES

Check stapler /nailer prior to starting installation as the installer will be responsible for damage caused by nailer/stapler and never place nailer directly on the hardwood as it may dent or scratch the flooring. Check the plate on the nailer before and during installation to avoid scratches. Ensure that the base sits flat on the floor and the top of the tongue. Check the base plate condition and verify proper hose and air compressor for the model is used. When using a pneumatic gun set and check air pressure regularly ensuring the nail/staple enters at a 45 degree angle and that the nail or staple is flush with the flooring as if not properly set it can cause dimples if pressure is too low in flooring or break the tongue if pressure is to high.

Do not use a another piece of wood to tap wood into place as it can cause damage to varnish use a rubber tapping block

measuring tape	flooring nails	rubber mallet
square	finishing nails	mitre saw
chalk line	touch up pencil	handsaw
hammer	shank nails	vacuum cleaner
nail punch	broom	stapler
protective eyewear	**Rubber** tapping block	brad nailer (optional)
pry-bar (small and large)	manual or air-driven hardwood hammer	electric drill with a 3/32” (2 mm) bit

FASTENER SCHEDULE

8 inch centers with a max of 3” from the end of every board

WOOD FLOORING TYPE	*FASTENER TO BE USED*	*FASTENER SPACING*
¾” thick less than 3” width	1 ½” -2” fastener	blind fastener spacing along lengths of the strips, minimum two fasteners per piece neat the ends (1-3”) in addition, every 8-10” apart for blind nailing, 10-12” for face nailing
¾” thick more than 3” width	1 ½” -2” fastener	blind fastener spacing along lengths of the strips, minimum two fasteners per piece neat the ends (1-3”) in addition, every 6-8” apart for blind nailing, 10-12” for face nailing

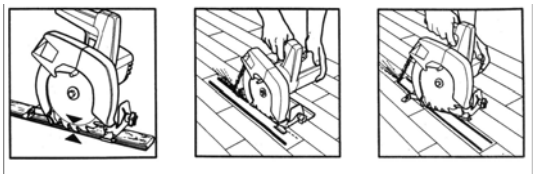
BOARD REPALCEMENT

Wood is a natural product and repairs during and after installation are normal. Using a touch up marker, wax filler, or putty filler to fix imperfections in the flooring is standard practice. In addition for the larger repairs a board replacement is a normal procedure during and after installation.

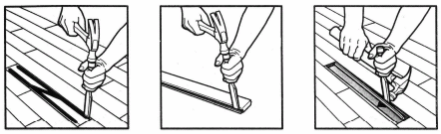
STEP ONE BOARD REPLACEMENT SELECTION

Individual wood flooring boards can be repaired /replaced in solid flooring without affecting adjoining boards. Always check the species to insure a proper match,(i.e. red oak, white oak,etc).

STEP TWO REMOVING DAMAGED BOARD



Make sure you have a replacement board. Set a circular saw to the depth of the thickness of the board to be removed.
Make one cut inset 1/2”from groove side running from end to end on the board to be removed.
Make a second cut inset 1/2” from tongue side running from end to end on the board to be removed.
Make a third cut across the center of the board at a 30-45 degree angle from first long cut to second long cut.



With a chisel cut completely through both ends at cut lines and lift out center of the board. The groove side piece can now be easily removed.
Carefully remove nails or staples and side tongue piece. Avoid damage to adjoining boards.

Alternate method on wood subfloors only

Drill a series of large holes across center and against grain of board to be removed. Avoid drilling too far into subfloor.
Using a sharp chisel cut off the tongue of the board being replaced. Avoid damaging adjoining boards.
Remove the board and trim the edges of the opening.

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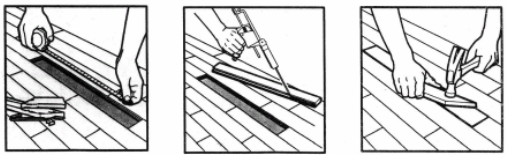
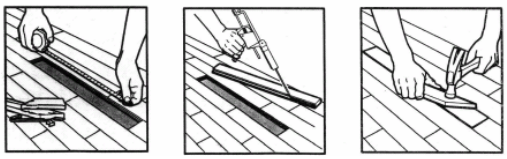


Replacing flooring that has been nailed/stapled down Clean all debris from the area.

STEP THREE BOARD REPLACEMENT



Measure the opening and cut replacement board to size. Carefully test the new board against the opening for precise fit.

From the back side of the replacement board, chisel off or cut lower half of its groove side and end match so that it will fit over the tongue of the adjoining boards in the replacement area.

Carefully dry fit the replacement board. Coat tongue and groove with glue. If available, use a fast setting epoxy to coat the back of the board to avoid the use of nails (described below) in the repair.

Insert tongue, then drive it into place, using a wood block and mallet. If adhesive has not been used to secure the board (as described above) to the subfloor drill pilot holes for nails at each end of board and along sides of long boards. Make holes smaller than the size of the cement coated nails.

Sink nail heads with a nail set. Use color putty to fill holes and joints

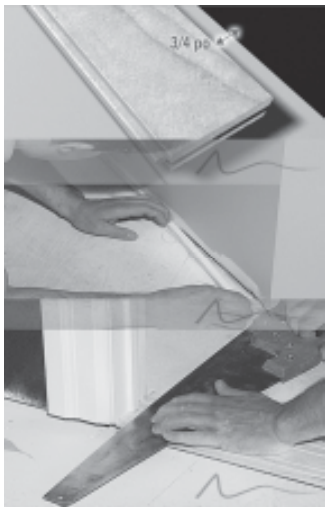
PROCEDURE FOR INSTALLATION

BE CAUTIOUS IN HANDLING FLOORING

To avoid damage to the finish, prefinished hardwood flooring must be handled more carefully during installation.

Frequent use of the vacuum cleaner is recommended to remove sawdust and wood shavings during the installation.

Place your tools on the sub-floor or on a piece of cardboard instead of directly on the hardwood flooring.



EXPANSION SPACE

Leave a 3/4”(19 mm) expansion joint along all the walls in the room. The joint will be hidden by the baseboard and quarter-round. The expansion room can also be under the finishing wall.

PREPARE DOORS

Saw 3/4” (19 mm) off the bottom of the door frame to be able to slide in a strip of hardwood flooring under the door frame. The bottom of the doors might need slight adjustments. The sub-floor must be well swept and very clean. Always follow the security instructions for all use of air-driven or electric tools.

INSTALL YOUR VAPOUR BARRIER. Over-lap seams a minimum of 4 inches.

SNAP CHALK LINE

The first row of strips must be absolutely straight from one end of the room to the other. **Use a chalk line to mark a line parallel to the wall that you are starting from.** The line should be 3” (76 mm) away from the wall, for strips of 2” (57 mm) and if you are using strips that are 3 1/4” (83 mm) wide, it should be at 4” (102 mm) away from the wall.

The guide line must make a 90° angle with the adjacent wall. It is very important to start laying the wood strips at a right angle.

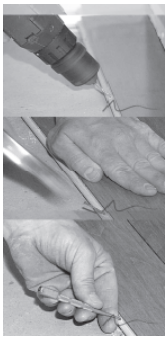
Open a few boxes and choose some strips to lay down on the floor. Choose only perfectly straight strips for the first two rows, as you will install manually.

Always select strips with care. Strips with imperfections should be cut to eliminate the flaw or installed in less visible areas (in closets and under electrical appliances). It is essential to select the strips. This allows for more uniform variations of color. Wood is a natural product. It is possible to find defects and variations of color.

A cutting loss of 3 to 5% is acceptable for the industry. Always handle your flooring strips with care in order not to damage them during the installation.

DRILL HOLES IN STARTING ROW

Install the first of strips by drilling holes 3/32” (2 mm) at 1” (25 mm) from the edge of each strip at intervals of **12”(30 cm).** Do not use glue to secure these rows as it will void the warranty and will cause the expansion space to not function properly.



Use a hammer and nail punch to drive in finishing nails Mask the holes with a touch up pencil**. Use this method of face nailing for the first and last row.**

Measure and saw a strip to complete the first row. Choose a strip that is long enough so that the remaining piece can be used to start the next row.

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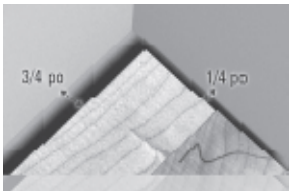

Leave a space of 1/4” (6 mm) between the wall and the end of each row of flooring.

INSTALL SECOND ROW

Start the second row with a strip at least 6” (15 cm) longer than the adjacent strip to avoid adjoining joints.

Install the first and the second row of strips by drilling holes 3/32” (2 mm) at a 45° angle in the tongue of each strip at intervals of 8”-10” (20-25 cm).

Use a nail punch to drive finishing nails in completely.

The drilled holes must be slightly smaller or of the same diameter as the finishing nails to ensure a tight fit and avoid cracks. Each piece must be held by a minimum of two (2) nails.

Install all other rows in the same manner, using only a hardwood hammer.

TEST NAILER

Use a scrap or defective strip to determine the amount of strength required to nail properly.

INSTALLING THE REMAINING FLOORING

Continue with hardwood nailer mallet and rubber tapping block to install the rest of the flooring by nailing.**8 inch centers with a max of 3” from the end of every board**

STAGGER JOINTS

To enhance the appearance of the flooring, avoid placing joints next to each other by choosing strips of different lengths. Staggering the joints makes them less noticeable.

INSTALL LAST TWO ROWS

Install the last three or four rows in the same manner as the first two, because the nearby wall will make it difficult to use the hardwood hammer.

MOLDINGS

After the strips have been installed, install the baseboards, quarter rounds and doorsills. The baseboards and quarter rounds must be nailed to the walls and not to the floor.

AFTER THE INSTALLATION

If you must move heavy pieces of furniture (refrigerator, piano, love seat, etc.) never slide them directly on the flooring. Instead, place a piece of carpet face down between the furniture legs and the flooring and pull on the carpet to move the furniture. By doing so, you will prevent damage to your flooring.

Empty cardboard boxes can protect your floor throughout the installation.